

## Health Information Exchange in Support of EMS

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(CAHIE)



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## Disclaimers

- Everything I know about EMS was gleaned from 2 1-hour conversations with **Pat Frost**, EMS Director for Contra Costa County.

**your local HIE**

- Title of the session is: "How can CAHIE assist with the relationship between hospitals and pre-hospital to exchange patient information?"



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## Define the Problem

- > EMS needs information about the patient as soon as it can be obtained.
- > EMS needs to be able to efficiently transfer the information it obtains about the patient and their emergency treatment upon arrival.

What are the barriers?

- Unique identification of the patient,
- Finding where the patient's information is,
- Requesting and receiving the patient's information,
- Identification of the patient in the receiver system (the ED),
- Protocol and standard format for data transmission.



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## Use Case to Inform the Problem

### Emergency responder is called to an accident:

- Patient's driver's license is obtained and read to dispatch
- Dispatch uses their local HIE Portal to search for the patient and requests a standard Continuity of Care Document (CCD)
  - Patient is not found in the local HIE – dispatch uses the CAHIE Directory Service to find an HIE indexed to the patient's county / likely to have data.
  - Dispatch posts a query to the remote HIE for a CCD.
- The CCD received is transmitted to the ambulance en route and to the Hospital ED for the emergency physician advisor.
- Emergent services provided with knowledge of the patient's conditions and medications.
- Patient pre-admitted enroute to ED from Dispatch information and the CCD
  - Patient's PCP notified.
- Transport arrives at the ED and uploads data to the pre-admitted record.



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## Step1: Querying for Patient Data

- Local HIE with a patient data portal, or
- Local HIE or other capability to post a cross-community patient discovery query (Exchange capability).
- Must have enough information about the patient to select that patient from the MPI.
- Responding HIE or EHR must have the capability of responding with a CCD or other clinical data architecture (CDA) documents.



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## HIE Basic Technical Elements

### HIE Foundational Services

- **Community Master Patient Index (CMPI or EMPI)**
- **Record Locator Service (RLS)**
- Master Provider Index (MPi)
- Entity Directory (Hospitals, Med Groups, etc.)
- User Directory
- Other Directories (Clinics, Public Services, Registries, non-participant message destinations, etc.)
- Authentication / Authorization Methods
- ATNA-compliant Transaction and Use Logs



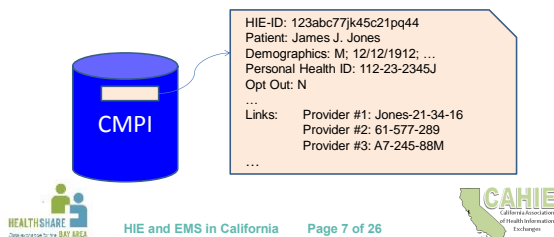
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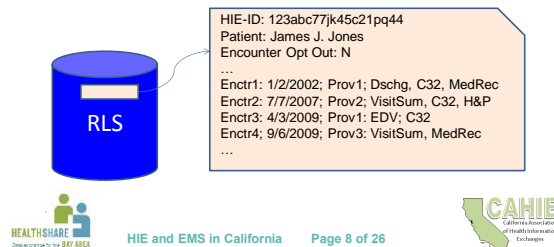
## CMPI

CMPI – often called an “EnterpriseMPI” where the enterprise is the HIE, but with the advent of many IDNs who have their own “EMPI” a new term “CommunityMPI” is emerging to describe the HIE’s aggregate MPI.



## Record Locator Service (RLS)

The RLS is the next stop for most data coming into the HIE. It is used to locate the source of encounter information, and consequently is also a natural list of where encounters have occurred and, often, what kinds of data are available for the encounter.



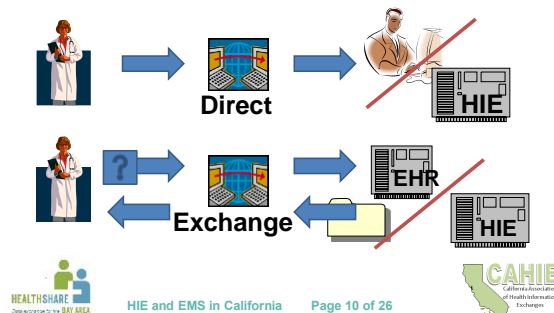
## CCD – Continuity of Care Document

The CCD was a joint effort of HL7 and ASTM which had previously developed the unstructured CCR (Continuity of Care Record), and the effort was to align that “care summary” with the corresponding encoded CDA Sections.

Content sections included in the CCD:	
Advance Directive	Language Spoken (R)
Allergy / Drug Sensitivity	Medication – Prescription and Non-Prescription
Comment (R)	Person Information
Condition / Problem	Plan of Care
Encounter	Pregnancy
Healthcare Provider (R)	Procedure
Immunization	Support (R)
Information Source (R)	Vital Sign
Insurance Provider	Results



## National strategies for moving clinical data between unrelated organizations:



## Direct

**“The Direct Project specifies a *simple, secure, scalable, standards-based way for participants to send authenticated, encrypted health information directly to known, trusted recipients over the Internet.*”**

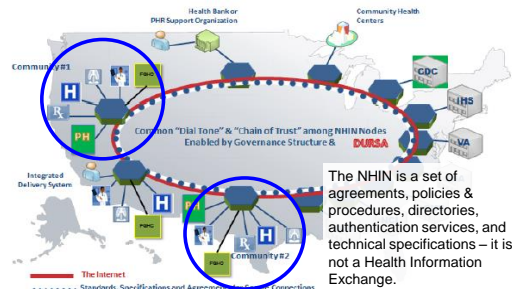
Quote taken from [The Direct Project Overview](http://wiki.directproject.org/file/view/DirectProjectOverview.pdf), October, 2010:  
<http://wiki.directproject.org/file/view/DirectProjectOverview.pdf>

Direct is simply a specialized form of email which is processed through a “Health Information Service Provider” (HISP) instead of a normal email route. Direct employs certificates and encryption to assure the confidentiality of the message.



## Exchange: eHealthExchange

### Nationwide Health Information Network (NHIN)



## Exchange (Connect)

*"CONNECT is an open source software solution that supports health information exchange – both locally and at the national level. CONNECT uses Nationwide Health Information Network standards and governance to make sure that health information exchanges are compatible with other exchanges being set up throughout the country."*

Quote taken from About CONNECT, on the Connect Web Site:  
<http://www.connectopensource.org/about/what-is-connect>

Exchange, in contrast to Direct, is a sophisticated services stack which is intended to employ several HITSP standards for health data exchange in a "pull" environment. Specifically, Exchange is the opposite of Direct in its method of operation – the requestor uses PIX/PDQ or XCPD to find a patient, and then through a query of the RLS requests certain documents.

<http://healthewayinc.org/index.php/exchange>



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## Exchange Interaction Model HIE::HIE

- Requestor posts a request through their local gateway for a patient's information and supplies demographic information.
- The local gateway corresponds to the target gateway (or to several targets) with cross-community patient discovery msg.
- The target gateway(s) search their local MPIs to determine if any there is any match for the data.
- If one or more potential matches are found, that information is returned to the requestor.
- The requestor selects the patient they are interested in and asks what documents are available.
- The list of available documents is returned.
- The requestor selects one or more documents to be received.
- The responding gateway selects and returns the requested documents after verification of privilege.



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## Step 2: Pushing Data to the ED

- Must be able to supply a unique patient identification to the receiver
- Data parsing, translation, and normalization may be required to synchronize data to the receiver's system
- Semantic Normalization of code sets may be required
- Creation of a CCD and other CCDA documents which can be consumed by the receiving EHR

**All of these services are common services of an HIE and can be used in conjunction with Direct to move ePCR data from EMS to the ED.**

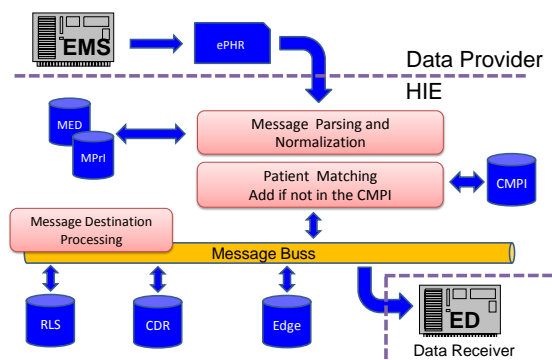


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## Message Routing Logic



## But Where is the Information?

**For California there are many HIEs – and often their coverage territories overlap.**

- Public HIEs are the classic RHIOs and other Community-based (and a few provider-based) HIOs whose governance is open to the community.
- Private HIEs are developed around a core IDN or IPA (and now, ACOs) and governed by the sponsoring organization.
- While revenue models differ, services and capabilities are most often similar.

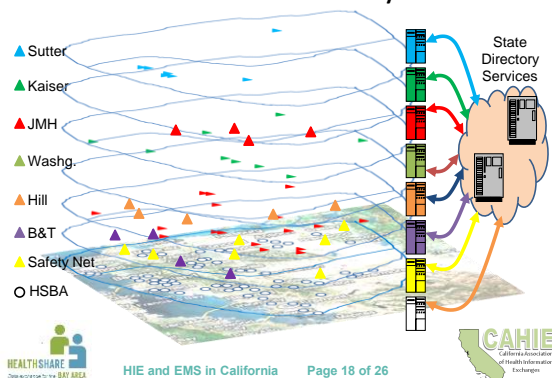


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## HIOs in the SF East Bay Area?



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**Introducing:**

**California Association of Health Information Exchanges**

CAHIE is a statewide group of community and enterprise health information organization leaders working together to advance safe and secure HIE throughout California.

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## CAHIE Vision

CAHIE's vision is to create a California trust framework that is based on national standards and protocols for trusted exchange and to create pathways to ensure that all providers can connect to and use Direct and HealtheWay's eHealthExchange (formerly NwHIN).

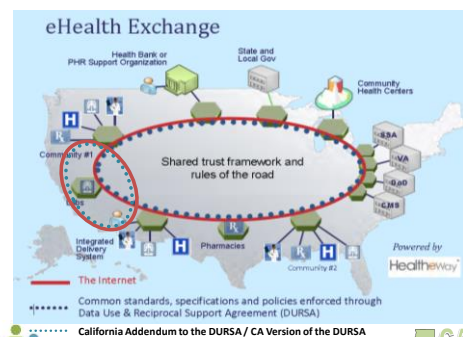
**In short, the CAHIE wants to functionally eliminate the interoperability white space in California.**

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## California HIOs



## Facilitating Interoperability in California

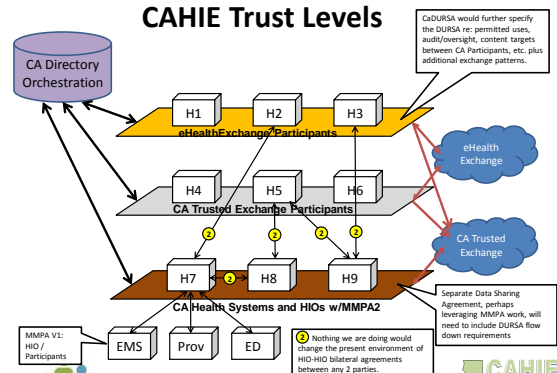


## California Health eQuality (ChEQ)

- CA State Governance Entity which is using the ARRA funding (\$36M for California) to enhance the use of HIE in California.
- Mostly, the money is being spent on grants for start-up HIOs, and development of services, toolkits, and guidance for HIOs in the state.
- ChEQ is also developing the California Directory Orchestration services.
- CalOHII (California Office of Health Information Integrity)** is the holder of the grant, and is also working on policy issues affecting HIE in CA.

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## CAHIE Trust Levels



## Who you Gonna' Call???

- Follow-up to the California HIE Stakeholder Summit with more information you will need to know about plans for 2014 and beyond as you formulate your organization's health data exchange strategy.
- Thursday, 11/21/2013, 12:00-1:30pm
- <http://www.nocalhimss.org/index.html>

## Questions???

[dave.minch@HealthShareBayArea.org](mailto:dave.minch@HealthShareBayArea.org)

<http://www.ohii.ca.gov/calohi/PrivacySecurity/CAHIE.aspx>



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